

Starting Something Engines, and Then Keeping It Running

What Makes the Car Go and How to Keep It Going Is Told for the Benefit of the New Car Owner

Series of Articles For Novice Car Owners

For the benefit of the new automobile owner, the Tribune offers a series of articles on the construction and operation of motor cars, prepared by H. C. Brokaw, technical director of the West Side Y. M. C. A. Automobile School. The fourth here tells about keeping the car running. The next article will tell how to drive properly.

The test of success long has been not that a fellow could start something but that he could finish it. It will be said that one is not an accomplished driver until he can get back on his own power, regardless of what conditions he is up against. Any one can be towed back—if he has the price. There is a little fear of this for the driver of a up-to-date car once he has learned the simple things of operation. It is ignorance which leads to trouble.

It takes three things to start an engine—gasoline, mixed with air, compression and ignition—and these must be continuous if the car is to keep running. In addition to keeping running there must be a system of lubrication, a system of cooling and a free exhaust. Now, this is a formidable list of things to master; really it can be done even by a child. To begin with the first on the list, for instance: It may be taken for granted if the engine is started and runs that the carburetor is adjusted properly and will stay so until human fingers alter it. Therefore the only trouble in the gasoline supply would be in failure to keep a supply in the tank or the stoppage of the pipe line by dirt, the remedy being obvious.

Compression may be determined by cranking over the engine by hand and noticing the resistance of each cylinder in turn. Lack of compression may come from leaky valves which need grinding in, lack of lubrication in the cylinder, since oil forms a seal between piston and cylinder walls; that the piston rings were gummed and not functioning, or that there was a leak at plugs, petcocks, or, if the cylinder head is removable, in its gasket. But an engine will run with pretty poor compression, though it may not deliver much power.

Often It Is Ignition Ignition is much more likely to be at fault than the other things mentioned. The modern car with starting system is quite a complex thing so far as its electric plant is concerned, for there is the starting motor and the generator, the storage battery, timing device, possibly a magneto, and an intricate system of wiring, with cutout and regulator, ammeter, lights, horn and maybe other devices to give trouble. Barring broken wires, loose terminals and dirty contact points the troubles should be few. The car instruction book gives a chart of wiring. Take it and trace each circuit from battery to device and back again and then find it on the car itself. Electric troubles will be discussed later, being too big a subject to be coupled with other things.

Lubrication is perhaps the most important feature of operation of the motor. Without it the motor would be dead in a few minutes. One metal part moving over another produces friction and this generates heat. Heat would destroy bearings made of a softer metal, and it would cause expansion of the metal parts sufficient to jam them "freeze" and stop the car.

engine. Lubrication means the placing of a film of oil or grease between two moving parts to reduce friction, and in the cylinder it has the added office of sealing for compression noted above. The lubrication system may be force feed, splash or circulating splash. The latter is the one most used. The book tells which is on your car. The oil is carried in the bottom of the crank case, called the sump, at a level determined by the manufacturer. It is pumped up a side on the dashboard, where you may observe its flow, and runs from there by gravity to the oil troughs in the crank case, and possibly to some other and from there to the cylinder in the troughs and splash it over the interior. Rapid motion of the parts produces a sort of oil fog in the crank case, which deposits a film of oil upon parts where the splash does not reach, lubricating all moving parts sufficiently.

Oiling Points The faults of lubrication are too little or too much oil. It is necessary to keep the sump filled to the required level. If there is too much oil it almost invariably works up past the piston and forms carbon in the combustion chamber. Inasmuch as the oil burned gasoline is as likely to work down into the sump, thinning the oil there, and carbon, minute metal particles and a little mud and dust, also get there, it is necessary to change oil in the crank case often. The book tells you how often for your car. It also tells you qualities to use summer and winter. Don't take contrary advice from any one. Keep the pump, pump screen and pipes clean by running kerosene through when changing oil. Half a gallon of kerosene in the sump and running the engine a minute will do the trick; then drain it out.

The cooling system may be thermo siphon or pump feed, for water, unless it is an air-cooled engine. The water supply is carried in the radiator, and it is necessary to see each time before starting out that there is a supply. Carry a folding pail to fill up the road if need be. The water is kept at this temperature of the cylinder low enough to prevent the oil from drying up; but it needs to be only just cool enough to prevent this. Radiator water passages are very small and the air passages large to insure rapid cooling of the water. Also there is a fan to aid the cooling process. The water circulates from radiator to water jacket, and then back to radiator to be cooled again, circulation being due either to pump pressure or natural heat circulation in the thermo siphon system.

In winter the water must be doped with alcohol or other non-freezing substance to keep it from freezing at low temperatures, and the system needs cleaning out at intervals with a strong washing soda solution to remove sediment. Otherwise the sole need is to keep the radiator full. You will find little or nothing in the book about the muffler, but it is quite important to keep the exhaust clear. Clogging of the passages in the muffler causes a back pressure which I have known to be enough to stall the engine. It may be detected when the engine runs sluggish by opening the cutout; then if the instantly picks up better clean out the muffler. With a clean muffler you will not need to use a cutout.

More Room for Studebaker In Brooklyn District

Even with the addition of their new six-story building, at the corner of Fifty-fourth Street and Broadway, the local Studebaker branch finds it necessary to make further plans for housing their rapidly growing business in greater New York. Having a large clientele of users in Brooklyn, Studebaker has selected a location at the corner of Bedford Avenue and Sterling Place, and on this site will be erected a \$250,000 building of concrete and terra cotta tiling.

Construction will start immediately, and it is planned to have it ready for occupancy by October 1. Until that date the present quarters will be maintained at 1261 Bedford Avenue.

Tonnage Ratings On Motor Trucks To Be Eliminated

Packard Company Takes a Forward Step of Great Importance for Benefit of Users

Factory tonnage ratings on Packard trucks are to be eliminated, and hereafter all models will be designated without reference to capacity, according to an announcement issued by the Packard company.

"We are wiping out a trade custom that is not only unfair to our trucks, but is misleading to the buying public," says the announcement. "The old system of factory tonnage ratings confuses the problem of truck transportation, and in condemning it we are clearing the way to a better understanding of truck performance. At its best the factory tonnage rating is a crude estimate of truck performance, and the automobile industry can no longer tolerate crude estimates. We shall take each truck sale as a distinct problem in hauling, and our engineers will advise the purchaser as to the truck he needs to meet his individual requirements. One of the first benefits of this new system will be the minimizing of over-loading, which is the most common abuse to which trucks are subjected, and which is largely due to the lack of definite information on truck performance."

"Packard trucks will carry their loads whether conditions are good or bad, but a purchaser whose conditions are good should not be led into buying more truck and more reserve performance than he needs. On the other hand, the purchaser whose conditions are unusually bad should be made to realize that a good measure of reserve performance will insure him against wasteful depreciation. Any system of rating that does not take into account the variety of conditions under which trucks are to work is inadequate."

Hereafter all Packard trucks will bear a plate on which will be stamped the name of the purchaser and the duty for which the truck is sold. In case of re-sale, the Packard engineers are to be consulted for the purpose of giving a new rating to the truck if the change in conditions requires it.

Auto Commerce Chamber To Move From 7 E. 42 St.

Will Occupy Two Floors in the New Marl-Rockwell Building, in 45th Street

After twenty years in one building, which the automobile industry has outgrown, the National Automobile Chamber of Commerce will move on May 1 from 7 East Forty-second Street, which has been to the automobile industry what 28 Broadway has been to the oil industry, to the new Marl-Rockwell Building, at Madison Avenue and Forty-sixth Street.

The 14th and 15th floors of the new building will be occupied, the building plans providing not alone for ample room for the new departments and rapidly expanding work of the chamber, but for a board room 28 by 63 feet, with a vault ceiling 19 feet high, to seat comfortably 225 people. This room will be offered to other automobile associations requiring large meeting places, so that it will be a central headquarters for all automobile affairs. On the 14th floor of the new building, the architect's plans show provision for the executive officials of the chamber and the active departments, including foreign trade, legislative, traffic, motor truck, rural motor, express, service, publicity, statistical, show, highways, patents and others. On the floor above will be located the

board room. The 15th floor, which was put up specially by the Marl-Rockwell Corporation to provide a proper meeting place for the industry, is served by a private elevator for the use of members only on meeting days. On the same floor is a rest room for employees, printing and mailing department, the general patents library and library reading room for the use of attorneys and engineers of members who are constantly working in the patents division.

Brooklyn Auto Show to Open Next Saturday

Fifty-seven Varieties of Passenger Cars To Be on Exhibition

The ninth annual exhibition of the Brooklyn Motor Vehicle Dealers' Association will open at the 23d Regiment Armory next Saturday night. It is a combined pleasure and commercial car show. There will be on exhibition fifty-seven passenger and seventeen commercial machines. The list is the most representative one that has ever been shown in Brooklyn. The Brooklyn Motor Vehicle Dealers' Association does not limit the show this year to firms members of the association. The throwing down of the bars is to build a get-together spirit that is to be a motor car world for the last few months.

Officers of the Brooklyn Motor Vehicle Dealers' Association are: C. M. Bishop, president; C. J. Maxson, first vice-president; F. Kengeter, second vice-president; I. C. Kirkham, treasurer; and W. A. Sellon, secretary. Show committee—C. J. Maxson, chairman; C. M. Bishop, C. J. Maxson, A. D. Corwin, H. L. Carpenter, W. R. Couch, H. A. Duland, E. A. Dunham, Harry Pyke, F. J. Nostrand, Charles S. Rogers, A. E. Randall, W. H. Kouwenhoven, T. C. Farrell, W. S. Hagar, J. W. Haynes, F. K. Jones, F. Kengeter, T. C. Kirkham, George D. Lewis, J. R. Ready, E. F. Bell, L. J. Seebek, M. Ray Stehley, A. R. Tator, D. W. Voorhees and Thomas H. Wood. Entertainment committee—George D. Lewis, chairman; W. R. Couch, Charles S. Rogers, T. C. Farrell, F. B. Nostrand. Tickets and admission—T. C. Kirkham, chairman; J. W. Haynes, F. K. Jones. Executive secretary, Ralph Ebbett.

New Plant for King

Artemus Ward, of New York, majority stockholder of the King Motor Car Company, has secured a large manufacturing property upon which to establish new works for the production of King automobiles. This site is on the west side of Detroit and east of the Rouge River. It is almost completely surrounded by the leading railroads of that section.

Mr. Ward announces that plans are now being drawn for a modern factory structure to meet the expanding business of the company.

Electric System Is a Mystery Worth Solving

Car Driver Will Find It Pays Him to Obtain a Working Knowledge of "Juice"

By WILLIAM H. STEWART JR.,
President of the Stewart Automobile School

The average motorist is apt to regard the car's electrical system as a subject for individuals of high mentality and assumes that without a prolonged technical education he has no chance to comprehend its mysteries. When car owners understand the principles of the electrical apparatus and the proper care of its important units and parts they will find that it is not hard nor difficult. What is more, they usually develop a pride in being able to keep their car in first class condition and in rendering "first aid" without having to depend upon mechanics.

One of the most abused and misunderstood parts on an automobile is the spark control lever. The amateur driver regards the spark when starting his car, and moves it upward when the engine starts running. Why? Simply because he has been told to do so. That it should be adjusted according to speed and road conditions, or even moved at all, once the engine is started, is beyond his comprehension.

He knows, of course, that this lever controls the spark and the spark explodes the firing mixture in the cylinders, but just why it should be advanced or retarded is something which most motorists do not understand. To know that economy, safety in starting and numerous other things depend upon its proper use should stimulate the car driver to familiarize himself with at least a slight working knowledge of the electrical system.

In ordinary driving the position of the spark lever need not be changed except for unusual road conditions after it is once set to run through a considerable range of speed. This condition is best found by the driver adjusting and experimenting with the particular range adapted to his type of car.

In going up a heavy grade nine out of ten drivers "rush" their car because they do not want to shift the gears. True, it is nice to skim over the top of a hill, but just how long will your engine stand for this abuse before it begins to voice its disgust in knocks and rattles? Just how much rubber has been chewed from the tires as they obtained traction for that rush? And how much gasoline was consumed in the getaway?

The "knock" from an engine laboring up hill is due to the fact that the spark occurs on the compression stroke and the explosion meeting the piston

tries to force it back, thus producing a sharp metallic thump. This "knock" would not occur on a level road unless the car was loaded, for the crankshaft is turning so rapidly that the piston has time to pass dead-center and start on the down stroke by the time the pressure of the explosion is effective. At all times the spark should be kept as far advanced as possible without causing the engine to "knock" for a low set spark tends to overheat and carbonize the engine.

Get acquainted with the sound of your engine. Determine the point of spark advance which is most efficient and economical. By so doing you will obtain greater power at a less cost per mile.

Trade Notes

The general sales department of the Kelly-Springfield Tire Company, which has been in Cleveland, will be moved to New York City. The Kelly-Springfield Tire Company is about to commence the erection of a sixteen-story office building in New York City, where the general sales department will be housed, together with the executive offices of the company.

Definite assurance that there would be no change in the policies of Dodge Brothers, Detroit automobile manufacturers, as a result of the recent death of Harry E. Dodge, president, was given to dealers at a meeting in the Blackstone Hotel, in Chicago, during the automobile show there. The assurance came in from a letter Horace B. Dodge, now at the head of the business, read at the meeting by George C. Hubbs, assistant general sales manager.

Arthur T. Murray has resigned as president of the Bethlehem Motors Corporation. Hiram P. Harris, general manager at the Allentown plant, succeeded him as president. Murray will continue to be closely identified with the American Bosch Magneto Corporation, of which he is now president. Harris formerly was general manager of the Republic Motor Truck Company.



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Sayers Six Comes to Town Roskam-Scott Co. to Distribute Cincinnati-Made Car Here

The Sayers & Scoville Company, of Cincinnati, have contracted with the Roskam-Scott Company, of 1896 Broadway, for the distribution of Sayers Six automobiles in New York, New Jersey and New England. Mr. Roskam, president of the Roskam-Scott Company, said: "For some time we have been looking for an automobile which has a decision to a considerable extent. The Sayers & Scoville Company have built high class bodies for nearly a half century. In 1916 the first Sayers Sixes were built and since then their production has been constantly increased, so that it was impossible to establish an Eastern distributor until now, when their new factory greatly increases production."

"All bodies on Sayers Six cars are hand built and hand painted, and the manufacturer does not follow the usual policy of furnishing only one arbitrary standard color of painting and trimming. Each purchaser can have his personal preferences incorporated in his own car."

Rebuilt Cars Selling Well Hudson's Annual Used Car Sale Due Does Big Business

The Hudson Motor Car Company of New York has just completed its annual sale of rebuilt cars, an event which went off better than usual, according to the statements made by Harry S. Hought, president of the company. The demand for these cars was clear evidence to him that the public is eager to get good machines which they can be obtained.

The active buying is proof also that people have heeded the often given warning that they must place orders early if they hope to have cars of any kind this spring. Every indication points to a decided shortage of all models.

Course for Motor Car Owners

The automobile course of the Stratton Company will have morning, afternoon and evening sessions in the month of March. Students will meet twice a week for four weeks. Full particulars about the March course can be obtained by calling Columbus 7100, instruction department.

S. de B. Keim, New York manager of the Locomobile Company, announces the appointment of Harry B. Stokes, formerly manager of the truck department of the Packard Company of New York, to duty in connection with Riker trucks.

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